



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/558,363	11/25/2005	Yasushi Okubo	KON-2053	3845
20311 7590 11/14/2007 LUCAS & MERCANTI, LLP 475 PARK AVENUE SOUTH 15TH FLOOR NEW YORK, NY 10016				
EXAMINER SESE, JASON A				
ART UNIT		PAPER NUMBER		
4174				
MAIL DATE		DELIVERY MODE		
11/14/2007		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/558,363

**Applicant(s)**

OKUBO ET AL.

**Examiner**

Jason A. Sese

**Art Unit**

4174

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## DETAILED ACTION

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Objections***

2. Claims 4-12 and 15-17 are objected to because of the following informalities:
  - Regarding Claims 15-17, periods must be moved to the end of the sentence.
  - Regarding Claims 4-12, 15-17, the word "Claim" should be lowercase.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 19-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Murakami (U.S. 2003/0170482).
5. Regarding Claims 19-21, the applicant claims a method for manufacturing a display substrate comprising the steps of: applying a high frequency voltage between opposed electrodes under atmospheric pressure or under approximately atmospheric pressure for a

Art Unit: 4174

discharge, generating a reactive gas in the plasma state by the discharge, exposing the transparent film for display substrate formed by the method of claim 18 to the reactive gas in the plasma state whereby the moisture-proof film and the transparent conductive film are formed on the transparent film.

The applicant further claims the method for manufacturing a display substrate of claim 19, wherein the frequency of the high frequency voltage is in the range from 100 kHz through 2.5 GHz, and the supply power is in the range from 1 W/cm<sup>2</sup> through 50 W/cm<sup>2</sup>, and further in the range from 100 kHz through 150 MHz.

Murakami discloses a process for manufacturing a display apparatus that comprises the formation of a film that is subjected to an atmospheric pressure plasma discharge treatment [0323]. In this process, the substrate is exposed to a reactive gas in the presence of 6 W/cm<sup>2</sup> at a frequency of 2 MHz [0298], to produce a moisture-proof silicon oxide layer and a conductive titanium oxide layer [0328].

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3, 5, 7 and 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (U.S. 2003/0170482).

8. Regarding Claim 1, the applicant claims a transparent film for display substrate, containing: a cellulose ester, and a plasticizer in an amount of less than 1 percent, wherein

Art Unit: 4174

the transparent film is drawn 3 through 100 percent both in a conveyance direction and a lateral direction.

Murakami also disclose a process for producing and stretching a cellulose ester film in the conveyance and the width direction 1.05 times and 1.1 times, respectively [0293].

Murakami also discloses that the cellulose ester film of the invention can be subjected to additional treatments, including the addition of a plasticizer. However, it is not required for a plasticizer to be present.

Plasticizer is a common additive in cellulose ester films, but is by no means considered an essential component. It would have been obvious to one of ordinary skill in the art to use less than 1 percent plasticizer, if not none at all.

9. **Regarding Claims 2-3**, the applicant claims the transparent film for display substrate, described in claim 1, wherein the transparent film contains a hydrolyzed polycondensate of the cellulose ester and an alkoxysilane expressed by formula (2) and a total amount of an inorganic high molecular compound expressed by formula (2) is less than 40 percent by mass in the transparent film.

Murakami et al. disclose that silicon dioxide particles are mixed into the cellulose ester film of the invention, in an amount from 5 to 30% weight [0141].

10. **Regarding Claim 5**, the applicant claims the transparent film for display substrate, described in claim 1 wherein the number average molecular mass of the cellulose ester is 100,000 or more.

Murakami et al. disclose that the number average molecular weight of the cellulose ester is preferably from 70,000 to 250,000 [0038].

11. **Regarding Claim 7**, the applicant claims the transparent film for display substrate, described in claim 1 wherein the degree of substitution of said cellulose ester by the acetyl group is 2.2 through less than 2.9.

Murakami et al. disclose that the substitution of the acetyl group in the cellulose is preferred to be not less than 1.6 [0033].

12. **Regarding Claims 12-13**, the applicant claims a display substrate wherein a moisture proof film containing a metal oxide or metal nitride is formed on at least one of the surfaces of a transparent film for display substrate in claim 1 and a transparent conductive film is formed on the moisture proof film or on the surface opposite to the surface where the moisture proof film is formed. Further, the applicant claims that the moisture proof film is mainly composed of silicon oxide.

Murakami discloses that a metal oxide or metal nitride layer is formed on the cellulose ester film, and that the film can include silicon and function as an electric conductive layer [0240].

Murakami discloses further that an optical film can be prepared by forming a mainly silicon oxide layer on the cellulose ester film, followed by another metal oxide layer [0266]. Regardless of whether the silicon oxide film was intended to be moisture proof, it would have served the same purpose.

13. **Regarding Claim 14**, the applicant claims the display substrate of claim 12 wherein the moisture proof film and the transparent conductive film is formed by applying a high frequency voltage between opposed electrodes under atmospheric pressure or under approximately atmospheric pressure for a discharge, generating a reactive gas in the plasma state by the discharge, exposing the transparent film for display substrate to the reactive gas

in the plasma state whereby the moisture proof film and the transparent conductive film are formed on the transparent film.

Murakami discloses that the films of claim 12 are produced by the plasma discharge method, in which the display is exposed to a reactive gas at atmospheric pressure, and subjected to a high frequency voltage [0298].

14. **Regarding Claims 15-17**, the applicant claims a liquid crystal display, an organic electroluminescence display, and a touch panel using the display substrate in claim 12.

Murakami et al. disclose that the optical film of the invention is meant to be utilized in liquid crystal display and organic EL display devices [0283]. It would have also been obvious to one of ordinary skill in the art to utilize the optical film in touch panels because many liquid crystal displays also incorporate touch panels.

15. **Regarding Claim 18**, the applicant claims a method for manufacturing a transparent film for display substrate according to a casting film forming method, comprising the steps of: casting the dope containing a cellulose ester and a plasticizer in an amount of less than 1 percent, onto a casting support member to form a web; drawing the web 3 through 100 percent both in the conveyance direction and the width direction; and drying the web.

Murakami also discloses a process for casting a cellulose ester film on a casting support, drying the film, and stretching in the conveyance and width direction 1.05 times and 1.1 times, respectively [0293].

The process for solution casting and stretching cellulose-based optical films is very well known in the art, as illustrated by Murakami. It is common practice to subject all types of cellulose ester films to this type of processing, so it would have been obvious to one of ordinary skill in the art, regardless of whether plasticizer was present in an amount less than 1 percent.

**16. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (U.S. 2003/0170482) as applied to claim 1 above, in view of Kobayashi et al.**

17. Regarding Claim 4, the applicant claims the transparent film for display substrate, described in claim 1 wherein the transparent film contains an organic crosslinking agent having a plurality of any of an isocyanate group, a thioisocyanate group and an acid hydride residue, in an amount of 1 through 20 percent by mass so that the cellulose ester is crosslinked.

Kobayashi et al. disclose a cellulose ester film that can be crosslinked with isocyanate compounds [0236].

**18. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (U.S. 2003/0170482) as applied to claim 1 above, in view of Hashimoto et al (JP2003-055477).**

The applicant claims the transparent film for display substrate, described in claim 1 wherein the transparent film is composed of a cellulose film of which glass-transition temperature obtained by thermal mechanical analysis (TMA) is 180 degrees Celsius or more, and the coefficients of linear expansion in both MD and TD directions are in the range from 5 through 50 ppm/degrees Celsius.

Murakami et al. disclose the cellulose ester film of claim 1, but are silent to the coefficient of thermal expansion.

Hashimoto discloses a cellulose ester film that has a coefficient of thermal expansion in the range of  $1.0 \times 10^{-5}$  through  $4.5 \times 10^{-5}$  parts/degrees Celsius (10 - 45 ppm/degrees Celsius) [0009].



Because the cellulose ester films described by Murakami et al. and Hashimoto et al. are similar, and lie in the same field of invention, it would have been obvious to one of ordinary skill in the art to adjust the composition of Murakami et al. to achieve the results of Hashimoto et al.

**19. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (U.S. 2003/0170482) as applied to claim 1 above, and further in view of Shimizu et al. (2002/0102369).**

The applicant claims the transparent film for display substrate, described in claim 1 wherein the transparent film contains a crosslinked polymer and the cellulose ester and the crosslinked polymer forms a semi-IPN (semi- interpenetrating polymer network) type polymer alloy, and transparent film contains the crosslinked polymer in an amount of 5 through 50 percent by mass of the transparent film.

Murakami et al. disclose the cellulose ester film of claim 1, but are silent to including a crosslinked polymer within the film.

Shimizu et al. disclose a cellulose ester film with lower vapor permeability, which comprises a polymerizable compound having an epoxy group that forms a network with the cellulose ester film [0123].

Because it both films lie in the same field of invention and it is desirable to achieve a lower vapor permeability in an optical film, it would have been obvious to one of ordinary skill in the art to apply the teachings of Shimizu et al. in the film of Murakami et al.

**20. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (U.S. 2003/0170482) as applied to claim 1 above, and further in view of Tasaka et al. (U.S. 2003/0020208).**

The applicant claims the transparent film for display substrate, described in claim 1 when the in-plane retardation value at the wavelength of 590 nm is  $R_0$  (590) and the in-plane retardation values at the wavelength of 480 nm is  $R_0$  (480), the ratio  $[R_0(480)/R_0(590)]$  is not less than 0.8 through less than 1.0.

Murakami et al. disclose the cellulose ester film, but are silent to the ratio of retardation values at wavelength 480 nm to wavelength 590 nm.

Tasaka et al. also disclose a stretched cellulose ester film, wherein the ratio of the retardation values at wavelength 450 nm to wavelength 550 nm ( $R_{450}/R_0$ ) is 0.88 [0512]. The examiner believes that had the retardation values been measured at 480 and 590 nm, the ratio would still fall in the range disclosed by the applicant.

Because both cellulose ester films lie in the same field of invention, it would have been obvious to one of ordinary skill in the art to apply the disclosure of Tasaka et al. to the film of Murakami et al. to produce a film with the desired retardation ratio.

**21. Claims 1-3 and 5-7, 11-17, 19-21 are rejected under 35 U.S.C. 103(a) as being obvious over Okubo et al. (U.S. 2004/0150331).**

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing

of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

22. **Regarding Claims 1-3**, Okubo et al. disclose a cast cellulose ester film that also comprises a polycondensation product of an alkoxysilane [0022, 0026]. Also disclosed is that the plasticizer in the film is less than 1% by weight [0028].

The disclosure does not teach stretching the film, but stretching cellulose ester optical films is very well known in the art, so it would have been obvious to one of ordinary skill to provide an additional stretching process.

23. **Regarding Claim 5**, Okubo et al. disclose that the cellulose ester has a molecular weight in the range from 70,000 to 200,000 [0086].

24. **Regarding Claim 6**, Okubo et al. disclose that the cellulose ester is substituted by substituents having an alkoxysilyl group [0080-0081].

25. **Regarding Claim 7**, Okubo et al. disclose that the degree of substitution of the acetylcellulose is in the range from 1.0 to 2.9 [0078].

26. **Regarding Claim 11**, Okubo et al. disclose that the ratio of the in-plane retardation at wavelength 480 nm to wavelength 590 nm is from 0.8 to less than 1.0 [0047].

Art Unit: 4174

27. **Regarding Claims 12-17**, Okubo et al. discuss the formation of a moisture proof layer of metal or silicon oxide, using a plasma discharge method [0122-0126], for use in a liquid crystal, organic EL display, or a touch panel [0011].
28. **Regarding Claims 19-21**, Okubo et al. disclose a plasma discharge treatment for manufacturing a display substrate [0134-0156]

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason A. Sese whose telephone number is 571-270-3473. The examiner can normally be reached on Mon-Thurs, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/  
Supervisory Patent Examiner, Art Unit 4174

Jason A. Sese  
Examiner  
Art Unit 4174

/J. A. S./